

Mean temperatures (maximum + minimum ÷ 2, averaged for each month) for Brownsville/South Padre Island International Airport in 2012. Click on each for a larger image.

Eleven for Eleven: Yes, it has been that warm in 2012 Will December Make a Full Year of Warmer than Normal Temperatures?

The close of November brought yet another above average month, temperature-wise, to the Rio Grande Valley. The start of December, with the first ten to eleven days expected to average 7 to 10°F above average, lends increasing certainty for a clean sweep for the calendar year. The streak of above average temperatures is even more impressive when considering the definition of *average* is the 30-year period from 1981 to 2010, which was the warmest 30-year value in at least the past half century. Other interesting stat facts:

Temperature

- For Brownsville/South Padre Island International Airport, an above average December 2012 would make it 23 of 24 months on the high side, broken only by February 2011.
- For McAllen/Miller Airport, the values are even closer to a clean sweep; only December 2011 fell just shy (0.2 degrees below) of the 30-year average.
- For Brownsville, the possibility exists for back-to-back warmest years on record. The period of record dates back more than 130 years, to 1878. In 2011, the calendar year average of 76.1°F set the all-time record. As of December 2nd, the calendar year average was at 78.1°F, a full two degrees above the previous marker.
- For McAllen/Miller, the possibility exists for two of the past three years to rank near the top (2011, #2; 2009, #3). The period of record dates back to 1961. For the McAllen water plant, with a record more than 70 years long, 2012 would join 2006 (currently #1), 2009 (currently #3), and 2011 (currently #5).
- Harlingen (cooperative) is also in the running for the warmest calendar year on record, dating back to 1911.

Rainfall

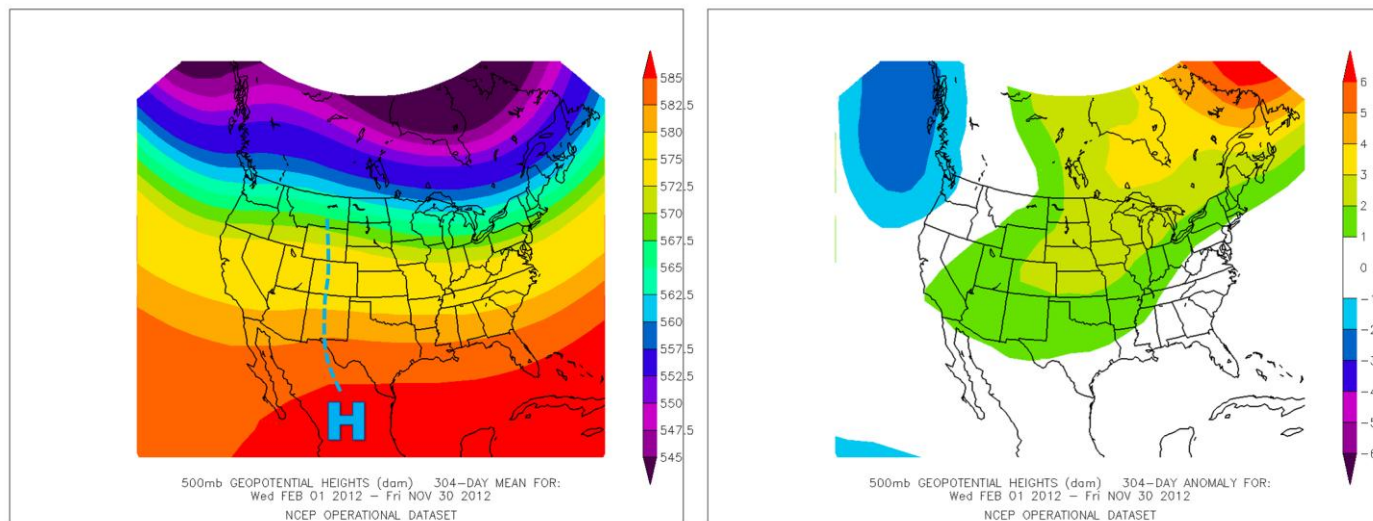
- Persistent dry weather and a severe to exceptional drought which has dominated much of the region since early 2011 has likely contributed to the record temperatures, as solar energy translates directly into heat rather than *evapotranspiration* of water from fertile soil and healthy crops, trees, and plants.
- Average rainfall since October 2010 across the Rio Grande Valley has ranged from 38% (western Hidalgo County) to 65% (Brownsville) of average. Preliminary departures from October 1, 2010 through December 2, 2012 (26 months) are as follows:

Location	Rainfall	Expected Rainfall	Departure	Pct. Of Expected
Brownsville	39.16	60.37	-21.21	65
Harlingen/Coop	26.98	60.45	-33.47	45
McAllen/Miller	27.87	46.08	-18.21	60
La Joya/Mission	16.45	43.51	-27.06	38

The following table shows preliminary January to November average temperature rankings across selected locations in Deep South Texas and the Rio Grande Valley. Data for sites not including Brownsville and McAllen/Miller based on 70% or higher availability of records per year.

Location	Avg. Temp.	Rank	Pvs. Record (year)	Available Sample Information	Start of Records	Remarks
Brownsville	78.10	1	77.19 (2011)	134 years	1878	
McAllen/Coop	79.4	1	78.5 (2009)	69 years	1941	
La Joya/Mission	78.8	1	78.5 (2009)	94 years	1910	
Port Mansfield	76.0	T-1	76.0 (2006)	54 years	1958	
San Manuel	78.0	1	76.5 (2000)	13 years	2000	
McAllen/Miller	79.3	2	80.0 (2009)	52 years	1961	
Hebbronville*	76.7	3*	77.6 (1933)	50 years	1905	*Missing 43 years entirely
Harlingen/Coop	77.4	4	77.5 (1972)	98 years	1911	
Mercedes 6 SSE*	76.7	6*	77.0 (1914)	41 years	1914	*Missing 40 years entirely
Falcon Dam	77.2	6	78.9 (1998)	50 years	1962	
Rio Grande City*	77.7	7*	79.5 (1902)	86 years	1897	*Missing 30 years entirely
Raymondville	76.5	9	78.0 (1950)	94 years	1913	
Port Isabel	76.8	9	79.3 (1982)	77 years	1928	
Mc Cook**	76.1	18**	78.8 (1950)	69 years	1941	**Missing 74 days, 30% each in Jun., Aug., Sep.

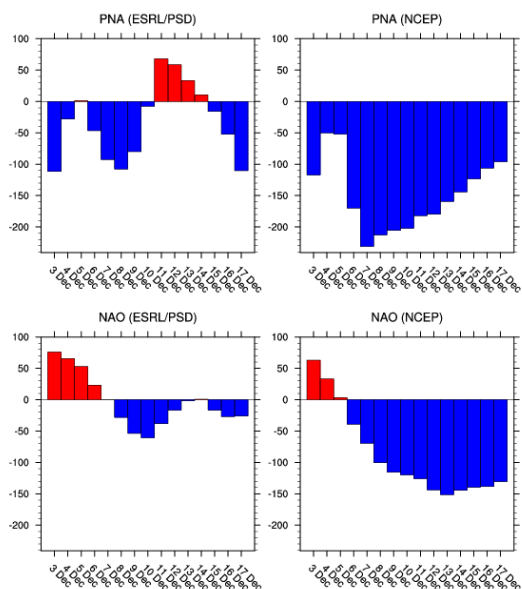
The mean atmospheric steering pattern at around 18,000 feet above the earth (below left), and anomalies (departures from average, right) are shown below for the U.S between February and November 2012. Note the northward extension of the broad 500 mb ridge - indicating warm and dry weather – shown by the dashed light blue line. This northward extension is more pronounced in the anomaly chart which shows positive departures from average from the southern Plains into Canada. The broad ridging helped increase temperatures and suppress precipitation across the Plains, leading to one of the worst droughts in decades; the southward extension into northern Mexico – “La Canícula” – from late spring into October – kept the Valley drought alive and aided a second straight very warm calendar year.



What's to Come?

The early warmth of December, expected to continue through the 10th, may be broken by a more vigorous cold front on the 11th or 12th, possibly followed by some rain before warming returns for the third weekend of the month. How cool/cold it gets between the 11th/12th and 14th remains to be seen. Model trends into the second half of December suggest a return to near or above normal temperatures; normal temperatures by mid-December range from the upper 60s to lower 70s during the afternoon, and mid-40s to lower 50s by daybreak. The chill-down, should it occur, would be brief – and not enough to overcome the unseasonably warm temperatures for the first third of December, which could – should – lock up the final month of an unusually persistent, warm 2012.

Ensemble Forecasts from 3 Dec 00Z



At left are ensemble forecasts of atmospheric puzzle pieces known as teleconnections, extending through December 17th. The top row shows the Pacific-North American index; negative values (blue) with a sufficient “dip” favor cold air outbreaks across the eastern half to eastern third of the U.S. The bottom row shows the North Atlantic Oscillation (NAO) teleconnection; negative values (blue) also favor cold air dipping south from Canada into the eastern half of the U.S., sometimes extending as far west as the lee of the Rockies and as far south as northeast Mexico during winter (December-February).

Uncertainty in the forecast is indicated by the differences in each column; the left column shows the Earth Systems Research Laboratory’s (ESRL) forecast, while the right column shows the National Center for Environmental Prediction forecast (NCEP), commonly based on the deterministic runs of the Global Forecast System model. The lack of a strong signal in the ESRL forecasts compared with the NCEP forecasts lends lower confidence for exactly how the week of December 9-15 will fare across South Texas and beyond. Stay tuned.